4. Existing Environment

4.1 General Setting

The proposed project occurs in the community of Lewiston, California, which is a small rural community located adjacent to the Trinity River approximately 1.5 miles downstream (south) of Lewiston Lake. The proposed project would be largely linear along existing roads, but would also encompass a majority of the residences and existing wastewater treatment facilities in Lewiston. A linear segment of the alignment would cross the mainstem Trinity River in the northwest portion of the study area. Current land ownership within the study area includes private, LCSD, LPMWC, BOR, BLM, and CDFW (Figure 2). Land use in the general vicinity primarily includes rural residential, recreation (e.g., fishing, boating), and undeveloped forested lands.

The climate is typical of northern California's Klamath region with moderate winters and hot, dry summers. Approximately 32 inches of precipitation and 7 inches of snow fall occurs annually, most of which occurs between November 1 and March 30. Air temperatures range between an average January high of 48 degrees Fahrenheit (ºF) and an average July high of 92ºF. The average annual high is approximately 69ºF. The average minimum temperature is approximately 40ºF (Western Regional Climate Center 2016).

The topography of the study area is mainly flat with several moderate slopes. The elevation ranges from 1,800 to 2,100 feet above mean sea level, with lower elevations located along the Trinity River and higher elevations located in the northeast corner of the study area. Soils within the study area consist of a mixture of gravelly, sandy, or clay loams, gravelly sand, or sand. The soils are derived from alluvium, colluvium, residuum, and outwash from hydraulic mining. Hydric soils are present in channels, drainages, and stream terraces. No ultramafic soils are present in the study area (Natural Resources Conservation Service 2016).

The mainstem Trinity River is the major hydrologic feature in the study area. Tributaries to the Trinity River (i.e., Hoadley Gulch and Dack Creek) and precipitation runoff from adjacent roads and hillsides also contribute to the hydrology of the study area.

Bureau of Land Management lands occurring in the study area consist of two oxidation ponds. These ponds were mainly dry during field investigations except for deeper portions that supported fresh emergent vegetation. Himalayan blackberry (*Rubus armeniacus*) brambles are present at the edges of the ponds and on an upland berm separating the ponds. The ponds contain mostly barren ground and freshwater emergent vegetation. No downed woody debris or rocky substrates are present.

4.2 Habitat Communities

The study area is generally located in roadways, road shoulders, residential properties, and other previously disturbed areas. Small portions of the study area occurs in native, unaltered habitat communities, such as riparian habitat along the Trinity River. Habitat communities occurring in the study area were characterized based on descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). Seven habitat types occur: montane hardwood-conifer, montane riparian, annual grassland, fresh emergent wetland, riverine, urban, and barren. Detailed

descriptions for each habitat community are provided below and their locations are shown in Figure 4.

Montane Hardwood-Conifer. Montane hardwood-conifer occurs in woodland patches in the eastern and northern portions of the study area. This habitat community is characterized by a moderately dense canopy composed of hardwood and conifer trees. The dominant overstory species include gray pine (*Pinus sabiniana*), Oregon white oak (*Quercus garryana*), and ponderosa pine (*Pinus ponderosa*). Understory vegetation includes whiteleaf manzanita (*Arctostaphylos viscida* ssp. *viscida*), buck brush (*Ceanothus cuneatus*), skunkbrush (*Rhus aromatica*), and birch leaf mountain mahogany (*Cercocarpus betuloides* var. *betuloides*). Common species in the herbaceous layer include California brome grass (*Bromus carinatus*), blue wildrye (*Elymus glaucus*), wild oat (*Avena fatua*), shamrock clover (*Trifolium dubium*), and morning glory (*Calystegia occidentalis*).

Fresh Emergent Wetland. Fresh emergent wetland occurs in the deeper portions of the oxidation ponds located on BLM lands in the northeastern portion of the study area. This plant community is dominated by cattail (*Typha* sp.), spikerush (*Eleocharis* sp.), and smartweed (*Persicaria* sp.). Fresh emergent wetland also occurs in the sewage treatment pond located at the northern end of the study area. The treatment pond holds shallow water year-around and supports a blanket of duckweed (*Lemna* sp.) on the surface.

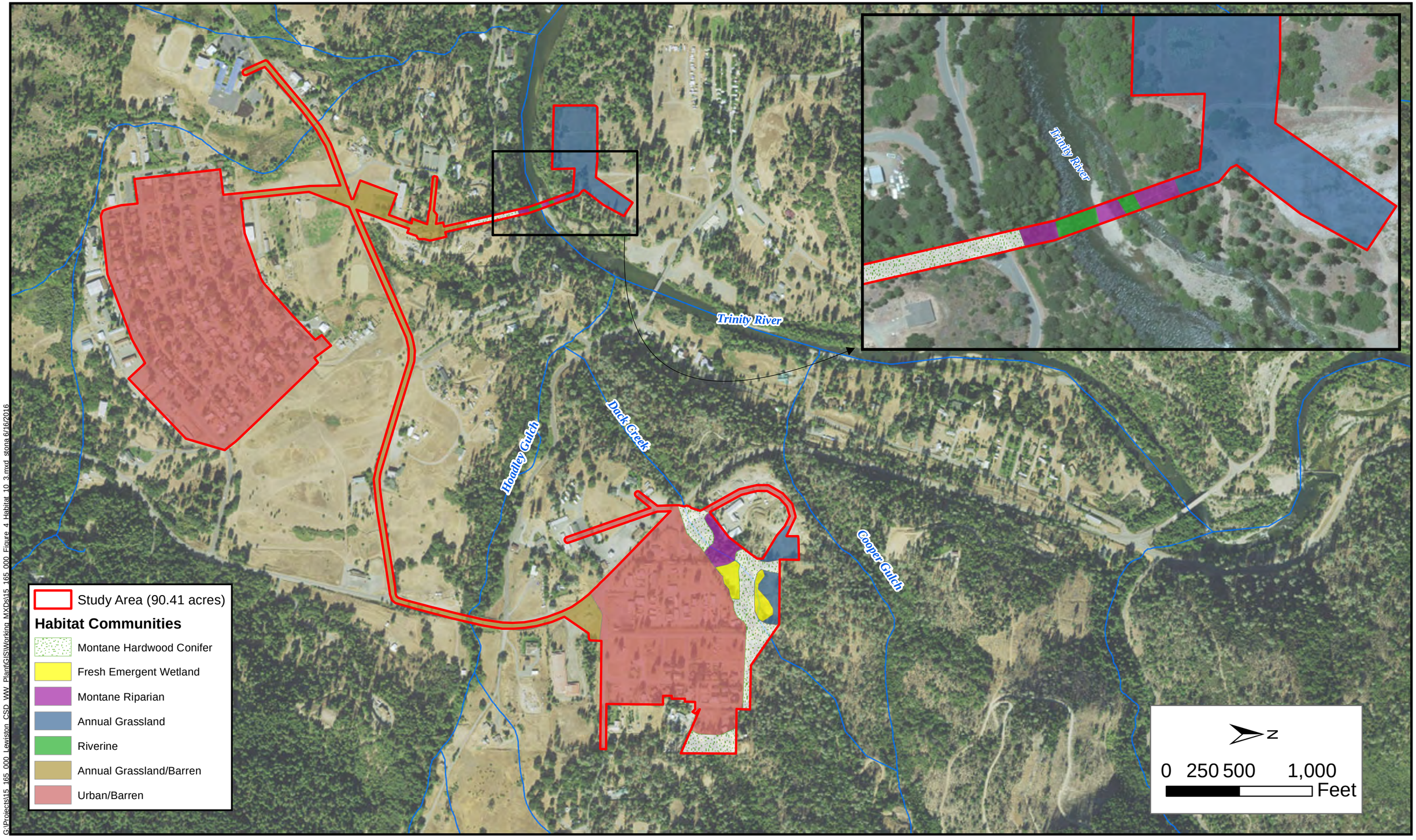
Montane Riparian. Montane riparian occurs along the Trinity River and Dack Creek in the western and northeastern portions of the study area, respectively. The overstory is comprised of white alder (*Alnus rhombifolia*), black cottonwood (*Populus trichocarpa*), and black willow (*Salix gooddingii*). Dominant shrub species include narrow-leaved willow (*Salix exigua*), arroyo willow (*Salix lasiolepis*), and Himalayan blackberry. Herbaceous species include common horsetail (*Equisetum arvense),* smooth horsetail (*Equisetum laevigatum*), and lamp rush (*Juncus effusus*).

Annual Grassland. Annual grassland occurs in several staging areas and along road shoulders in the study area. It is characterized by a dense herbaceous layer dominated by annual grasses and forbs, including small fescue (*Festuca microstachys*), foxtail brome (*Bromus madritensis* ssp. *rubens*), soft brome (*Bromus hordeaceus*), hairy gumweed (*Grindelia hirsutula* var. *davyi*), yellow star-thistle (*Centaurea solstitialis*), English plantain (*Plantago lanceolata*), little tarweed (*Madia exigua*), and harvest brodiaea (*Brodiaea elegans*).

Riverine. Riverine occurs as the Trinity River and is located in the western portion of the study area. Dominant aquatic habitats include riffle and run with boulder, cobble, gravel, and sand substrates. Some vegetation such as willows (*Salix* spp.) occurs on gravel bars within the active river channel.

Urban. Urban habitat occurs as residential properties in the northeastern and southern portions of the study area. Urban is characterized by irrigated lawns and gardens, and various ornamental trees and shrubs.

Barren. Barren occurs as dirt and paved roads and their associated road shoulders throughout the study area. Vegetation is usually absent, although sparse cover of opportunistic grasses and forbs or weedy species do occur at several locations.



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North State Resources, Inc.

Lewiston Community Services District Wastewater Project

Figure 4
Habitat Communities

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4.3 Special-Status Species

A list of potentially occurring special-status plant species was compiled based on review of pertinent literature, the USFWS species list, CNDDB and CNPS database records, the BLM list of sensitive plant species, and the field survey results. The status of each special-status plant species was verified using the *Special Vascular Plants, Bryophytes, and Lichens List* (California Department of Fish and Wildlife 2016b) and the *State and Federally Listed Endangered, Threatened and Rare Plants of California* (California Department of Fish and Wildlife 2016c).

A list of potentially occurring special-status wildlife species was compiled based on review of pertinent literature, the USFWS species list, CNDDB database records, a query of the California Wildlife Habitats Relationship System, the BLM list of sensitive wildlife species, and the field survey results. The status for each special-status wildlife species was verified using the *Special Animals List* (California Department of Fish and Wildlife 2015d) and the *State and Federally Listed Endangered and Threatened Animals of California* (California Department of Fish and Wildlife 2015e).

The Survey and Manage program is a result of the 2001 Record of Decision and Standards and Guidelines for Amendments to Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines (U.S. Department of Agriculture and U.S. Department of the Interior 2001). The fungi, lichen, bryophytes, vascular plants, mollusks, and vertebrates included in the survey and manage program are typically associated with old-growth forest. These species were considered for the BLM portion of the study area and base upon the field review, no potential habitat for survey and manage species occurs as no old growth or old growth forest characteristics are present.

For each species, habitat requirements were assessed and compared to the habitats in the study area and immediate vicinity to determine if potential habitat occurs in the study area. Special-status plant and wildlife species whose geographic range occurs outside the study area and/or occur in habitats absent from the study area are eliminated from further consideration. Based on the habitat assessment, the study area provides potential habitat for four special-status plant species (Table 3) and 12 special-status wildlife species (Table 4).

Table 3. Potentially Occurring and/or Other Evaluated Special-Status Plant Species in the Study Area

Common Name *Scientific Name*	Status[1] (Fed/State/ CRPR)	General Habitat Description	Habitat Present/Absent
Federal and State Listed Species			
Indian Valley brodiaea *Brodiaea rosea*	—/E/1B.1	Serpentinite. Closed-cone coniferous forest, chaparral, cismontane woodland, and valley and foothill grassland. Elevation: 1,000-5,000 feet. Bloom: May-June.	**Absent.** Serpentine soils are not present in the study area.

Table 3. Potentially Occurring and/or Other Evaluated Special-Status Plant Species in the Study Area

Common Name *Scientific Name*	Status[1] (Fed/State/ CRPR)	General Habitat Description	Habitat Present/Absent
Tracy's eriastrum *Eriastrum tracyi*	—/R/3.2	Chaparral, cismontane woodland. Elevation: 1,030-5,840 feet. Bloom: May–July.	**Present.** Conifer-hardwood forest in the study area provides potential habitat for this species.
Hoover's spurge *Euphorbia hooveri* formerly *Chamaesyce hooveri*	T/—/1B.2	Vernal pools. Elevation: 50-1,000 feet. Bloom: July-October.	**Absent.** No vernal pools occur in the study area.
Slender Orcutt grass *Orcuttia tenuis*	T/E/1B.1	Vernal pools. Elevation: 660-3,600 feet. Bloom: May-October.	**Absent.** No vernal pools occur in the study area.
Other Special-Status Species			
Porcupine sedge *Carex hystericina*	—/—/2B.1	Marshes, swamps and streambanks. Elevation: 2,000-3,020 feet. Blooms: May-June.	**Present.** Streambanks, vegetated ditches and other riparian habitat in the study area provide potential habitat for this species.
Northern clarkia *Clarkia borealis* ssp. *borealis*	BLMS/—/1B.3	Chaparral, cismontane woodland, and lower montane coniferous forest. Elevation 1,320-4,420 feet. Blooms: June-September.	**Present.** Woodland and roadside areas in the study area provide potential habitat for this species.
Dudley's rush *Juncus dudleyi*	—/—/2B.3	Mesic areas in lower montane coniferous forest. Elevation 1,490-6,560 feet. Blooms: July-August.	**Present.** Streambanks and other riparian habitat in the study area provide potential habitat for this species.

[1]Status Codes: Federal and State: T = Threatened; E = Endangered; R = Rare; BLMS = BLM Sensitive
California Rare Plant Rank (CRPR) Codes:
List 1B Plants rare, threatened, or endangered in California and elsewhere.
List 2B Plants rare, threatened, or endangered in California but more common elsewhere
List 3 Plants about which more information is needed.
Extensions
.3 Not very endangered in California
.2 Fairly endangered in California
.1 Seriously endangered in California

Table 4. Potentially Occurring and/or Other Evaluated Special-Status Wildlife Species in the Study Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Habitat Present/Absent
Federal and State Listed Species			
Conservancy fairy shrimp *Branchinecta conservatio*	E/—	Large vernal pool habitats consisting of moderately turbid cool water.	**Absent.** No vernal pool habitats occur in the study area.
Vernal pool fairy shrimp *Branchinecta lynchi*	T/—	Vernal pools, swales, and seasonal freshwater habitats.	**Absent.** No vernal pool or other suitable aquatic habitats occur in the study area.
Vernal pool tadpole shrimp *Lepidurus packardi*	E/—	Vernal pools, swales, and ephemeral freshwater habitats.	**Absent.** No vernal pool or other suitable aquatic habitats occur in the study area.
Southern Oregon/northern California coasts Evolutionary Significant Unit (ESU) coho salmon *Oncorhynchus kisutch* *Critical Habitat*	T/T	Spawn and rear in freshwater rivers and streams (Klamath and Trinity rivers and their tributaries).	**Present**. This species is known to spawn and rear in the Trinity River. Additionally, the Trinity River in the study area is considered Designated Critical Habitat for the species.
Shasta salamander *Hydromantes shastae*	BLMS,SM/T	Occurs around Shasta Lake, Shasta County. Habitat includes moist limestone fissures and caves, in volcanic and other rock outcroppings, and under wood in mixed conifer forest habitats.	**Absent.** The study area occurs outside of the species geographic range.
Western yellow-billed cuckoo *Coccyzus americanus*	T, BLMS/E	Nests in extensive blocks of riparian habitat. Strongly associated with cottonwood/willow riparian habitat.	**Absent.** No extensive blocks of riparian habitat occur in the study area.
Little willow flycatcher *Empidonax traillii brewsteri*	—/E	Rare summer resident in wet meadow and montane riparian habitats from 2,000 to 8,000 feet in elevation.	**Present.** Potential habitat is present in riparian along the Trinity River.

Table 4. Potentially Occurring and/or Other Evaluated Special-Status Wildlife Species in the Study Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Habitat Present/Absent
Bald eagle *Haliaeetus leucocephalus*	D,BLMS/E, FP	Requires large bodies of water, or free-flowing rivers with abundant fish and adjacent snags and large trees for perching and nesting.	**Present**. Potential nesting habitat is present adjacent to the study area along the Trinity River.
Northern spotted owl *Strix occidentalis caurina*	T/CT, SSC	Nests and forages in large stands of old growth, multi-layered mixed conifer, redwood, and Douglas fir habitats.	**Present.** Suitable dispersal habitat was determined to be present in the general area. No potential nesting/roosting or foraging habitat occurs.
Gray wolf *Canis lupus*	E/E	Habitat generalist, will establish territories where sufficient food sources occur (i.e., large game animals). Den sites are established in areas of low disturbance, away from roads and man-made structures.	**Absent.** Due to the current level of human disturbance in the study area no potential denning habitat is present.
California wolverine *Gulo*	—/T, FP	A variety of habitats between 1,600 and 14,200 feet elevation. Most commonly inhabits open terrain above timberline in areas with permanent or late-season snowpack. Recently considered extirpated from California, until one individual was located in the Tahoe National Forest.	**Absent.** No potential habitat is present in the study area.
Townsend's big-eared bat *Corynorhinus townsendii*	BLMS/CT, SSC	Maternity roosts are found in caves, tunnels, mines, and buildings. Maternity roosts are in relatively warm sites and located away from human disturbance.	**Absent.** Due to the moderate level of human disturbance in the study area, no potential maternity roosting habitat is present.
Other Special-Status Species			
Klamath Mountains Province ESU steelhead *Oncorhynchus mykiss irideus*	—/SSC	This DPS includes steelhead from the Elk River in Oregon to the Klamath and Trinity rivers in California.	**Present.** This species is known to spawn and rear young in the Trinity River.

Table 4. Potentially Occurring and/or Other Evaluated Special-Status Wildlife Species in the Study Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Habitat Present/Absent
Upper Klamath-Trinity Rivers ESU spring-run Chinook salmon *Oncorhynchus tshawytscha*	—/SSC	The ESU includes all naturally spawned populations of Chinook salmon in the Klamath and Trinity River Basins upstream of the confluence of the Klamath and Trinity Rivers.	**Present.** This species is known to spawn and rear in the Trinity River.
Foothill yellow-legged frog *Rana boylii*	BLMS/SSC	Rocky streams with permanent pools in a variety of habitats.	**Present.** Potential habitat occurs in the Trinity River in the study area. The species is known to occur in the Trinity River from Lewiston Dam to the North Fork Trinity River (California Department of Fish and Wildlife 2016a).
Western pond turtle *Actinemys marmorata*	BLMS/SSC	Slow water aquatic habitat with available basking sites. Requires an upland oviposition site near the aquatic site with good sun exposure, gentle slope, and sparse vegetation. Usually on south- or west-facing aspects.	**Present.** The sewage treatment pond in the northern portion of the study area and the Trinity River provides potential habitat for the species. Potential upland habitat is located in the vicinity of both features.
Yellow warbler *Setophaga petechia*	—/SSC	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods.	**Present.** Riparian habitat along the Trinity River provides potential habitat for the species.
Yellow-breasted chat *Icteria virens*	—/SSC	Breeds in riparian habitats having dense understory vegetation, such as willow and blackberry.	**Present.** Riparian habitat along the Trinity River provides potential habitat for the species.
Pallid bat *Antrozous pallidus*	BLMS/SSC	Forages over many habitats; roosts in buildings, trees, rocky outcrops and rocky crevices in mines and caves.	**Present.** Potential roosting habitat occurs in forested areas and buildings in the study area.
Ring-tailed cat *Bassariscus astutus*	—/FP	Riparian habitats and in brush stands of most forest and shrub habitats. Dens in rock recesses, hollow trees, logs, snags, abandoned burrows or woodrat nests.	**Present.** Riparian along the Trinity River provides potential habitat.

Table 4. Potentially Occurring and/or Other Evaluated Special-Status Wildlife Species in the Study Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Habitat Present/Absent
Fisher West Coast Distinct Population Segment (DPS) *Pekania pennanti* formerly *Martes pennanti*	BLMS/SSC	Dens and forages in intermediate to large stands old-growth conifer/mixed conifer forests of mixed stands of old growth and mature trees with greater than 50% canopy closure.	**Absent.** No potential denning habitat occurs in the study area.

[1] Status Codes: Federal and State Codes: E = Endangered; T = Threatened; CT = Candidate Threatened; D = Delisted; BLMS = BLM Sensitive; SM = Survey and Manage; SSC = California Species of Special Concern, FP = California Fully Protected Species

4.3.1 Special-Status Plants

Four special-status plant species were determined to have a potential to occur in the study area including one that is listed as Rare in California: Tracy's eriastrum. The remaining three potentially occurring special-status plants include porcupine sedge, northern clarkia, and Dudley's rush. A botanical survey of suitable habitats in the study area was conducted on June 9, 2016 and coincided with the blooming period of all potentially occurring special-status plants except Dudley's rush, which generally blooms in July and August. No special-status plant species were observed during the botanical survey and all rushes occurring in the study area were identified to species (i.e., no Dudley's rush was present). Based on the findings of the botanical survey, the proposed project would have no effect on special-status plant species.

4.3.2 Special-Status Wildlife

Habitat for 12 special-status wildlife species was determined to potentially occur in the study area and general vicinity including habitat for four federal and/or state listed species: southern Oregon/northern California coasts Evolutionary Significant Unit (ESU) Coho salmon, little willow flycatcher, bald eagle, and NSO. The other eight potentially occurring special-status wildlife species include Klamath mountains province ESU steelhead, Upper Klamath-Trinity rivers ESU spring-run Chinook salmon, foothill yellow-legged frog, western pond turtle, yellow warbler, yellow-breasted chat, pallid bat, and ring-tailed cat.

Southern Oregon/Northern California Coasts ESU Coho Salmon

The southern Oregon/northern California coasts ESU Coho salmon is both federal and state listed as threatened. Coho salmon spend the first portion of their life cycle rearing in freshwater rivers and streams. The remainder of their life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean before returning to their stream of origin to spawn and die. Nearly all adult Coho salmon returning to spawn in the Trinity River system enter the estuary in late September through

October and spawn by mid-winter (National Marine Fisheries Service 1997). Juvenile Coho salmon require complex stream habitats that include a mixture of pools and riffles, large woody debris, and cool (50-59°F) well oxygenated freshwater. Coho salmon fry initially congregate in shaded backwaters, side channels, or small streams. The most productive Coho salmon nursery habitats tend to be small streams with a larger ratio of slack water to midstream area (National Marine Fisheries Service 1997). Coho salmon fry typically rear in freshwater for up to 15 months before migrating to the ocean in the spring as smolts. Coho salmon typically spend two growing seasons in the ocean before returning to their natal stream to spawn.

In the study area, the Trinity River provides all four major components of Coho salmon freshwater Essential Fish Habitat: (1) spawning and incubation; (2) juvenile rearing; (3) juvenile migration corridors; and (4) adult migration corridors. Potential project-related impacts on Coho salmon and other anadromous fish species and the recommended measures for avoidance and minimization are discussed below in Section 6.2.1.

Little Willow Flycatcher

The little willow flycatcher is listed as endangered in California. It is one of four subspecies of willow flycatcher, three of which occur in California. It breeds in California from Tulare County north, along the western side of the Sierra Nevada and Cascades, extending to the coast in northern California (Craig and Williams 1998). In California, the little willow flycatcher is a rare to locally uncommon summer resident in wet meadows and montane riparian habitats occurring between 2,000 and 8,000 feet in elevation and a common spring and fall migrant at lower elevations, primarily in riparian habitat throughout the state exclusive of the north coast (Zeiner et al. 1990a). This subspecies nests in dense riparian thickets and forages on insects, berries, and seeds.

Little willow flycatcher may nest in or near montane riparian habitat along the Trinity River and has been detected (i.e., observed and/or heard) along the Trinity River below Lewiston Dam during breeding bird surveys (Wilson 1995; Miller et al. 2003). Potential project-related impacts on little willow flycatcher and the recommended measures for avoidance and minimization are discussed below in Section 6.2.2.

Bald Eagle

The bald eagle is listed as a BLM sensitive species and in California it is listed as endangered and as a fully protected species. It is one of North America's largest birds with adult bald eagles having a wingspan between 6.5 to 8 feet. Most of the annual food requirements of a bald eagle are derived from or obtained around aquatic habitats. Foods most often consumed include fish, waterbirds, and small to medium-sized mammals. Because of the dietary association, nesting territories are usually found near water. Perches are used primarily during the day for resting, preening, and hunting, and may include human-made structures such as power poles. Roosting areas contain a night communal roosting tree that is easily accessible to these large birds and tall enough to provide safety from terrestrial predators.

The Trinity River in the study area provides foraging habitat for bald eagles. Additionally, large trees near the river provide potential nest sites, although no potential bald eagle nests were observed during

the field reconnaissance visit. Potential project-related impacts on bald eagle and the recommended measures for avoidance and minimization are discussed below in Section 6.2.3.

Northern Spotted Owl

The NSO is listed under the federal ESA as threatened and is a candidate for threatened status under CESA and is currently designated as a species of special concern in California by CDFW. Critical habitat designated by USFWS for NSO occurs approximately 0.16 mile south of the study area.

The NSO is a nocturnal species and resident of structurally complex forests. Preferred nesting and roosting habitat includes a multi-story, multi-species, moderate to dense canopy dominated by large trees with a high incidence of cavities or broken tops, sufficient space below the canopy for flight, and an accumulation of woody debris on the ground (U.S. Fish and Wildlife Service 2011). The owls usually nest in mistletoe clumps or abandoned raptor or raven nests (Zeiner et al. 1990a).

North State Resources, Inc. conducted a NSO habitat assessment and auditory and visual impacts evaluation (NSO assessment) for the proposed project on June 21, 2016 (Appendix E). The NSO assessment followed USFWS guidance provided in *Estimating the Effect of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California* (U.S. Fish and Wildlife Service 2006). The assessment included a background literature search, an analysis of the potential for auditory and visual disturbance to NSO as a result of the proposed project, and a field survey to identify and map NSO nesting/roosting, foraging, and dispersal habitat. The NSO assessment area included the study area and a 0.5-mile buffer.

Based on the results of the NSO assessment, no NSO have been reported in CNDDB to occur within 1.3 miles of the study area and only functional NSO dispersal habitat (i.e., transitory areas between functional nesting/roosting habitats) occurs in the study area and 0.5-mile buffer. Given the absence of functional nesting/roosting habitat, NSO are not expected to nest in the study area or general vicinity; therefore, implementation of the proposed project would not result in auditory or visual harassment on nesting NSO and no avoidance and/or minimization measures would be necessary for implementation of the proposed project.

Klamath Mountains Province ESU Steelhead and Upper Klamath-Trinity Rivers ESU Spring-run Chinook Salmon

The Klamath mountains province ESU steelhead and Upper Klamath-Trinity rivers ESU spring-run Chinook salmon are both anadromous salmonids listed as California species of special concern by CDFW. All anadromous salmonids begin their life in freshwater, migrate to the ocean to rear and mature, and return to spawn in freshwater. Although these two species have generally similar life histories, they differ in the time of year they migrate and spawn, as well as when egg incubation typically occurs.

Adequate flows, water temperatures, water depths, and velocities; suitable spawning and rearing substrates (e.g., coarse gravels); and availability of instream cover and food items are critical for the health and survival of all anadromous salmonids. Adult spring-run Chinook salmon and summer-run steelhead also require summer holding habitat for which stream pool size and depth, temperature, cover, and proximity to spawning gravel are important. Newly emerged fry and juveniles require

rearing habitat with low velocities, open cobble substrate, and cool water temperatures. The emigration of smolts to the ocean and the immigration of spawning adults to their native streams require appropriate flows, temperatures, depths, and velocities.

The mainstem of the Trinity River provides holding and spawning habitat for adult spring-run Chinook salmon. The species prefers holding in deep pools, especially from late April through August. Adults commence spawning about the second week of September and continue through mid-October. In the study area, fry and juvenile spring-run Chinook salmon are likely to be present in the Trinity River from late December through October. Outmigration of spring-run smolts would occur from late October through June (California Department of Fish and Game 2013).

Adult summer/fall-run steelhead migrate to and hold in the deeper pools and runs in the mainstem Trinity River from April through January (Leidy and Leidy 1984; Moyle 2002). These fish typically feed actively throughout the salmon spawning season, and migrate from February through April to the upper-most accessible river reaches and tributaries to spawn. Winter-run steelhead migrate to spawning grounds from November through April and spawn during the same time as the summer/fall run. Steelhead spawning habitat occurs in riffle habitats. Fry and juvenile steelhead of both runs may occur in riffle and run/pool habitats year-round, especially those associated with large cobble and boulder cover as well as overhanging riparian vegetation and large woody debris (Hampton 1988; Moyle 2002). Suitable juvenile steelhead rearing habitat occurs throughout the study area.

Potential project-related impacts on anadromous fish species and the recommended measures for avoidance and minimization are discussed below in Section 6.2.1.

Foothill Yellow-Legged Frog

The foothill yellow-legged frog is listed as a BLM sensitive species and as a California species of special concern by CDFW. The foothill yellow-legged frog is found in or near rocky streams in a variety of habitat types. Adults often bask on exposed rock surfaces near streams. When disturbed, they dive into the water and take refuge under submerged rocks, vegetation, or sediments (Stebbins 2003). During periods of inactivity, especially during cold weather, individuals seek cover under rocks in the streams or on shore within a few meters of water. Unlike most other ranid frogs in California, this species is rarely encountered far from permanent water.

Potential habitat for foothill yellow-legged frog is present along the Trinity River in and adjacent to the study area. Potential project-related impacts on foothill yellow-legged frog and the recommended measures for avoidance and minimization are discussed below in Section 6.2.4.

Western Pond Turtle

The western pond turtle is listed as a California species of special concern by CDFW. It occurs throughout California west of the Sierra crest and is absent from desert regions except for along the Mojave River (Zeiner et al. 1988). The western pond turtle is often associated with ponds and quiet backwaters of rivers and streams. Western pond turtles require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks. Within their aquatic habitat, western pond turtles often occur in areas containing underwater refugia such as rocks, submerged vegetation, or holes along banks (Hays et al. 1999). In colder areas, western pond turtles may

hibernate underwater in bottom mud or in upland sites that are near water and have deep layers of duff. The western pond turtle is a dietary generalist, often foraging along the bottom of water features for aquatic invertebrates.

Western pond turtles typically mate from March through August. Nests are often located in open areas with good sun exposure and few shrubs or trees, and may be a considerable distance from the aquatic site (0.25 mile) (California Department of Fish and Game 1994). Females excavate an upland nest chamber in which the eggs are laid and subsequently buried. Hatchling turtles are thought to emerge from the nest and move to an aquatic site in the spring.

Western pond turtles are known to occur in the mainstem Trinity River, and suitable aquatic habitat occurs in the study area along the river. The sewage treatment pond located in the northern portion of the study area also provides suitable aquatic habitat for western pond turtle. Potential nesting habitat occurs in uplands in the vicinity of the Trinity River and sewage treatment pond. Potential project-related impacts on western pond turtle and the recommended measures for avoidance and minimization are discussed below in Section 6.2.5.

Yellow Warbler and Yellow-Breasted Chat

The yellow warbler is listed as a California species of special concern by CDFW. It is a Neotropical migrant that principally occurs in California as a migrant and summer resident from late March through early October (Shufford and Gardali 2008). It is usually found in dense riparian deciduous habitats with cottonwoods, willows, alders, and other small trees and shrubs typical of open-canopy riparian woodlands. The species breeds from mid-April to early August, building an open cup nest in a tree or shrub. Female yellow warbler's typically produce one clutch of 4 to 5 eggs a year. Yellow warbler foraging patterns usually involve gleaning and hovering for insects and spiders.

The yellow-breasted chat is listed as a California species of special concern by CDFW. It is a Neotropical migrant that usually arrives in California in April and departs by late September. In California, they typically occur in early successional riparian habitats with a well-developed shrub layer and an open canopy (Shuford and Gardali 2008). Nesting habitat is usually restricted to the narrow border of streams, creeks, sloughs, and rivers (Shuford and Gardali 2008). Breeding occurs from May to early August. Nests are built low to the ground, often in dense shrubs along streams. Clutch size generally varies from 3 to 5 eggs and typically only one clutch is produced a year. Yellow-breasted chat foraging patterns usually involve gleaning insects, spiders, and berries from the foliage of shrubs and low trees.

Yellow warblers and yellow-breasted chats may nest in riparian along the Trinity River. Potential project-related impacts on yellow warbler and yellow-breasted chat, and the recommended measures for avoidance and minimization are discussed below in Section 6.2.6.

Pallid Bat

The pallid bat is listed as a BLM sensitive species and as a California species of special concern by CDFW. Pallid bat day and night roost sites include crevices in rocky outcrops and cliffs, caves, mines, hollow trees, and various human structures such as bridges, barns, porches, bat boxes, and human-occupied, as well as vacant buildings (Zeiner et al. 1990b; Sherwin and Rambaldini 2005).

Pallid bats roost alone, in small groups (2 to 20), or gregariously (hundreds of individuals) (Sherwin and Rambaldini 2005). Females typically have 1 to 2 pups per year. Mating occurs from October to February (sperm is stored in the reproductive tract until spring), parturition is from late April to July, and weaning occurs in July through August (Zeiner et al. 1990b). Pallid bats are opportunistic generalists that glean a variety of arthropod prey from surfaces, but also capture insects on the wing. With exception of the high Sierra Nevada, pallid bats occur throughout California from Shasta to Kern counties and the northwestern corner of the state from Del Norte and western Siskiyou counties (Zeiner et al. 1990b).

Snags, hollow trees, and abandoned or infrequently used buildings found in the study area provide suitable roosting habitat for pallid bat. Potential project-related impacts on pallid bat and the recommended measures for avoidance and minimization are discussed below in Section 6.2.7.

Ring-tailed Cat

The ring-tailed cat is listed as a California fully protected species. The species is widely distributed in California and occurs in various riparian habitats and in brush stands of most forest and shrub habitats. Nocturnal, and primarily carnivorous, ring-tailed cats mainly eat small mammals but also feed on birds, reptiles, insects, and fruit. They forage on the ground, among rocks, and in trees; usually near water. Hollow trees and logs, cavities in rocky areas, and other recesses are used for denning and cover. Young are usually born in May and June and disperse 18 weeks later (Zeiner et al. 1990b; Maser 1998).

Riparian brush and logs adjacent to the Trinity River provide potential denning habitat for ring-tailed cat. Potential project-related impacts on ring-tailed cat and recommended measures for avoidance and minimization are discussed below in Section 6.2.8.

4.4 Rare Natural Communities

In addition to inventorying reported occurrences of special-status species, the CNDDB serves to inventory the locations of rare natural communities. Communities respond to environmental changes and can be thought of as an indicator of the overall health of an ecosystem and its component species. Rare natural communities are those communities that are of highly limited distribution. They may or may not contain rare, threatened, or endangered species. The CNDDB ranks natural communities according to their rarity and endangerment in California. Based on review of the CNDDB, No rare natural communities occur within the study area (California Department of Fish and Wildlife 2016a).

4.5 Riparian Woodland Habitat

Riparian habitat (montane riparian) is present in the study area and is considered a sensitive natural community by CDFW. Under State Fish and Game Code Section 1600, CDFW as a CEQA Trustee Agency, may take jurisdiction over resources including riparian areas within the 100-year flood plain of streams or rivers. Riparian areas provide habitat for wildlife, stream bank stability, shade, nutrient or chemical regulation, and input large woody debris or organic matter to the channel, which are necessary habitat elements for fish and other aquatic organisms. Riparian occurs along the Trinity River in the study area. It also occurs in the vicinity of the sewage treatment pond and Dack Creek at the northern end of the study area. Potential project-related impacts on riparian habitat and recommended measures for avoidance and minimization are discussed below in Section 6.3.

4.6 Habitat Connectivity and Deer Critical Winter Range

Environmental corridors are segments of land and/or water that provide a link between habitats while also providing cover. Corridors function as avenues along which animals travel, plants disperse, genetic interchange can occur, populations of threatened and endangered species can be replenished from other, often nearby, populations. Environmental corridors often consist of riparian areas along streams, rivers, or other natural features, while aquatic features such as rivers and streams may serve as migration corridors, and spawning and rearing habitat for anadromous fish.

Critical deer winter range can include movement corridors, staging areas where deer congregate, habitats with high quality winter forage or other elements for deer to survive the winter.

The Trinity River and riparian along the banks provide an environmental corridor for a variety of fish and wildlife species. Additionally, critical winter range for black-tailed deer (*Odocoileus hemionus*) (Weaverville herd) occurs in the study area. Habitat connectivity and deer critical winter range are further discussed below in Section 6.4.

4.7 Waters of the United States

NSR conducted a delineation of waters of the United States including wetlands within the study area on June 21, 2016 and November 29, 2016. A total of 1.050 acres of potential waters of the United States were mapped within the study area and include riparian wetland (0.404 acre), seasonal wetland (0.062 acre), seep spring wetland (0.415 acre), vegetated ditch (0.037 acre, 785 linear feet), intermittent stream (0.014 acre, 279 linear feet), and perennial stream (0.118 acre, 74 linear feet). Six wastewater treatment ponds (1.576 acres) also occur in the study area and are considered excluded aquatic features. The boundaries of potential waters of the United States within the study area including the wastewater treatment plants are illustrated in Figure 5. Potential project-related impacts on potential waters of the United States, including wetlands, and recommended measures for avoidance and minimization are discussed below in Section 6.5.

4.8 Waters of the State

Waters of the State include all sources of surface and groundwater and riparian vegetation associated with waters of the State that contribute to the biological integrity of the surface water. Potential waters of the state include all potential waters of the United States, the six wastewater treatment ponds (1.576 acres), and riparian vegetation around the Trinity River (0.136 acres) and a seep spring wetland associated with Dack Creek (0.556 acres). The boundaries of potential waters of the State within the study area are illustrated in Figure 5. Potential project-related impacts on potential waters of the State, including wetlands, and recommended measures for avoidance and minimization are discussed below in Section 6.6.

4.9 Noxious Weeds and Invasive Plant Species

Noxious weeds and invasive plant species are undesirable, non-native plants that commonly invade disturbed sites. The origin of the disturbance may be natural, or it may be the consequence of land management or construction activities. When disturbance results in the creation of habitat openings or in the loss of intact native vegetation, noxious weeds and invasive plant species may colonize the

site and spread, often out-competing native plants. Once established, they are very difficult to eradicate and could pose a threat to native species.

The status of all non-native plant species found in the study area were reviewed to determine their level of ecological impact. Invasive plant species are considered to have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure and are designated by a California Invasive Plant Council rating of "High" or California Department of Food and Agriculture rating of "A." Occurrences of invasive species found in the study area include medusa head (*Elymus caput-medusae*), Himalayan blackberry, yellow star-thistle, and Spanish broom (*Spartium junceum*).

BLM is responsible for controlling and preventing infestations of noxious weeds on the public land it administers. BLM's Redding Field Office maintains a list of eighteen noxious weeds known to occur in its region (U.S. Bureau of Land Management 2007). Three noxious weeds were observed on the BLM portion of the study area, including yellow star-thistle, Klamath weed (*Hypericum perforatum*), and Himalayan blackberry.

Implementation of the proposed project could result in the spread of non-native and invasive plant species (e.g., yellow star-thistle and Himalayan blackberry) during ground-disturbing activities. This would be considered an adverse effect. Potential project-related impacts and measures for avoidance and minimization are discussed below in Section 6.7.

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Project Study Area (90.41 acres)

Potential Staging Area

Proposed New Sewer Lines
N=New (Proposed)
E=Existing

OHWM

Culvert

Data Point

Potential Waters of the United States

Wetlands

Riparian Wetland (0.407 acre)

Seasonal Wetland (0.062 acre)

Seep Spring Wetland (0.415 acre)

Vegetated Ditch (0.037 acre)

Other Waters

Intermittent Stream (0.014 acre)

Perennial Stream (0.131 acre)

Impacts on Waters of the United States

Temporary Impacts (0.011 acre)

Potential Waters of the State

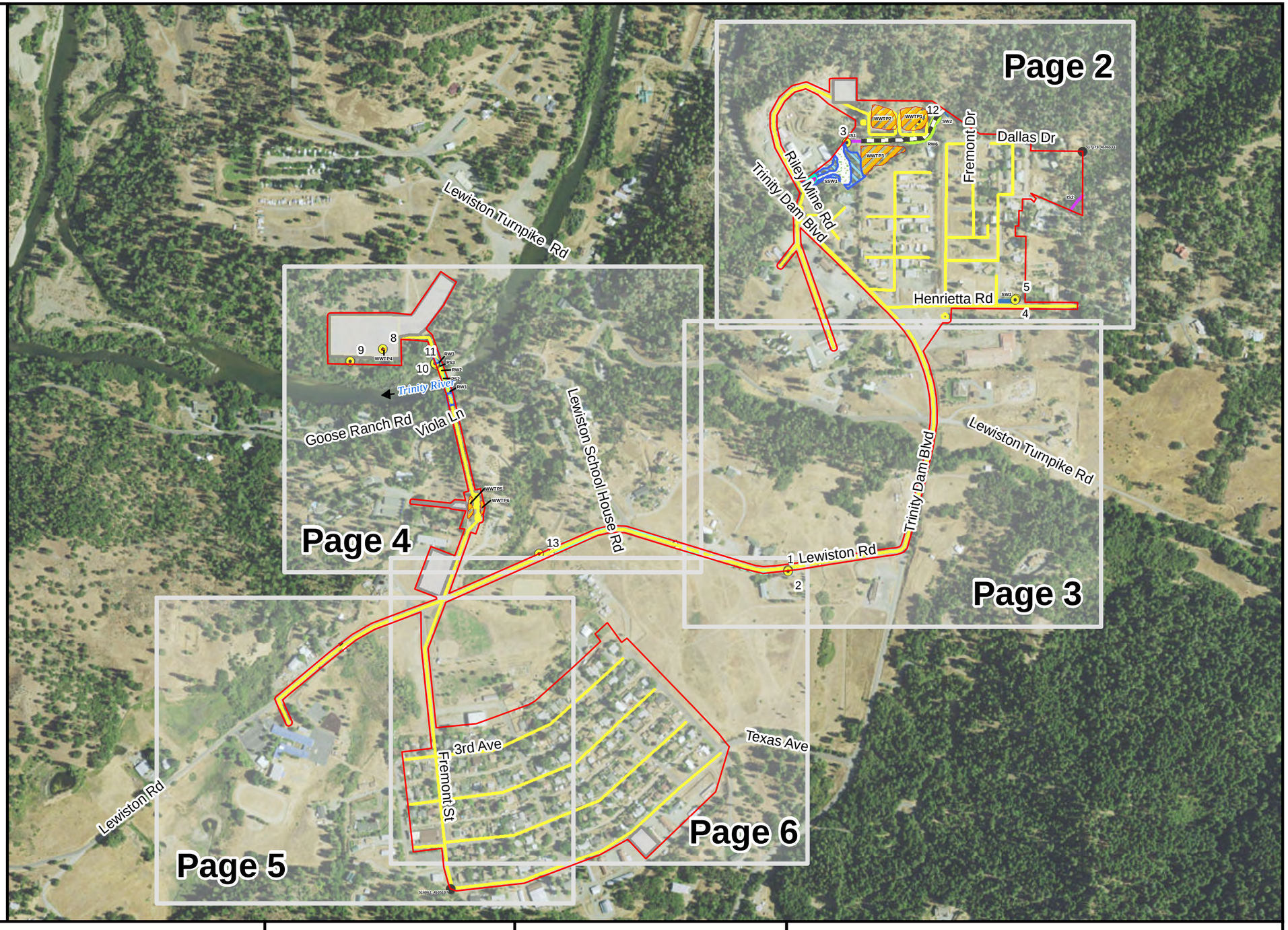
Riparian Vegetation (0.692 acre)

Waste Water Treatment Pond (1.576 acres)

Impacts on Waters of the State

Temporary Impacts (0.027 acre)

Note: A summary table of individual features is included on Page 7.



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Prepared for:
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This delineation of waters of the United States is subject to verification by the U.S. Army Corps of Engineers (Corps). NSR advises all parties that the delineation is preliminary until the Corps provides a written verification.

Delineator: Gabe Youngblood
Delineation Date: June 21, 2016
Aerial Photography Source: ESRI World Imagery

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Tansverse Mercator
Datum: North American 1983

N

0 300 600 1,200
Feet

1 in = 600 feet

Lewiston Community Services District Wastewater Project

Figure 5. Impacts on Potential Waters of the United States and Waters of the State

January 2017

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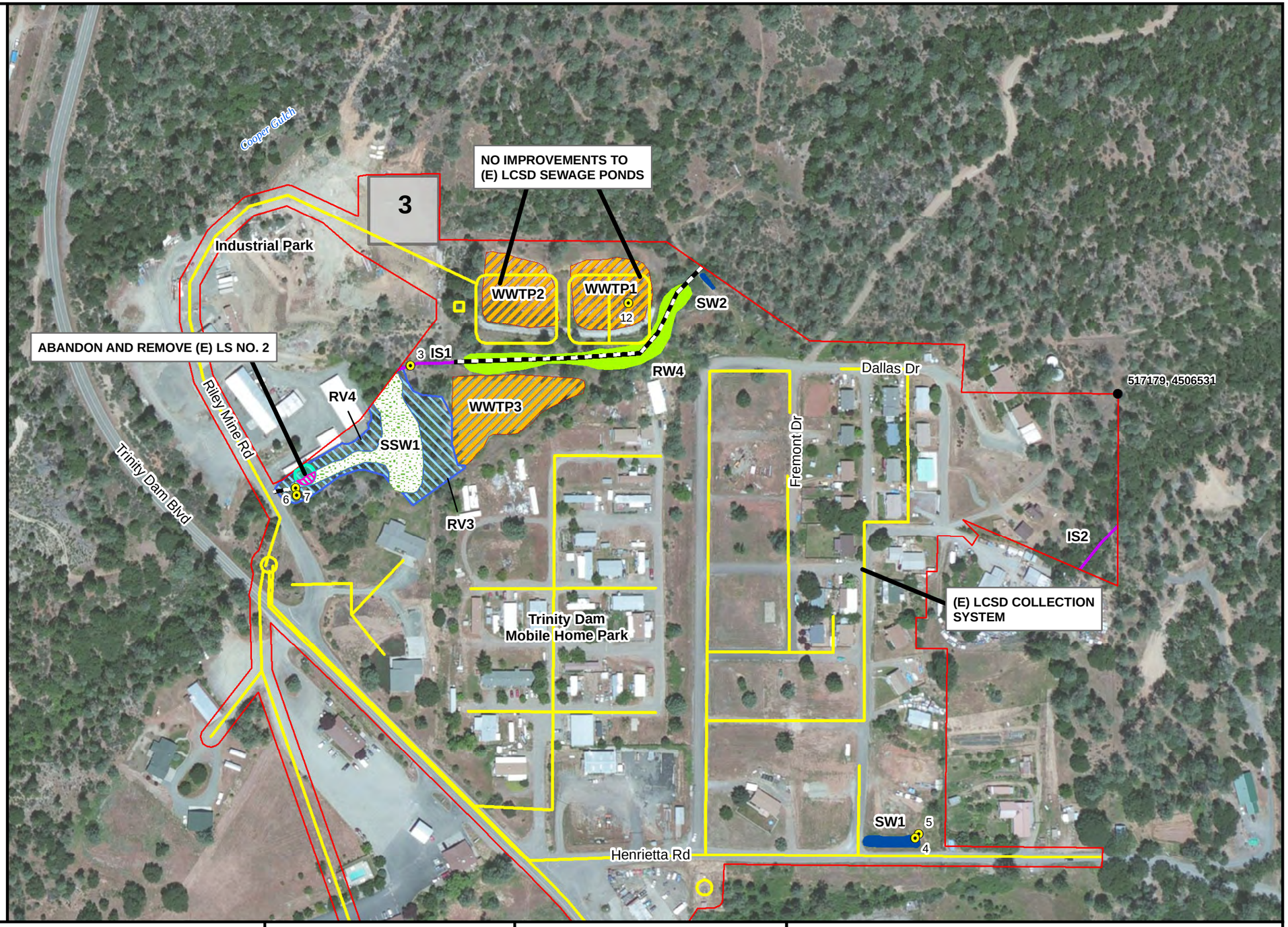

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N

0 100 200 400
Feet

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Lewiston Community Services District Wastewater Project

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January 2017

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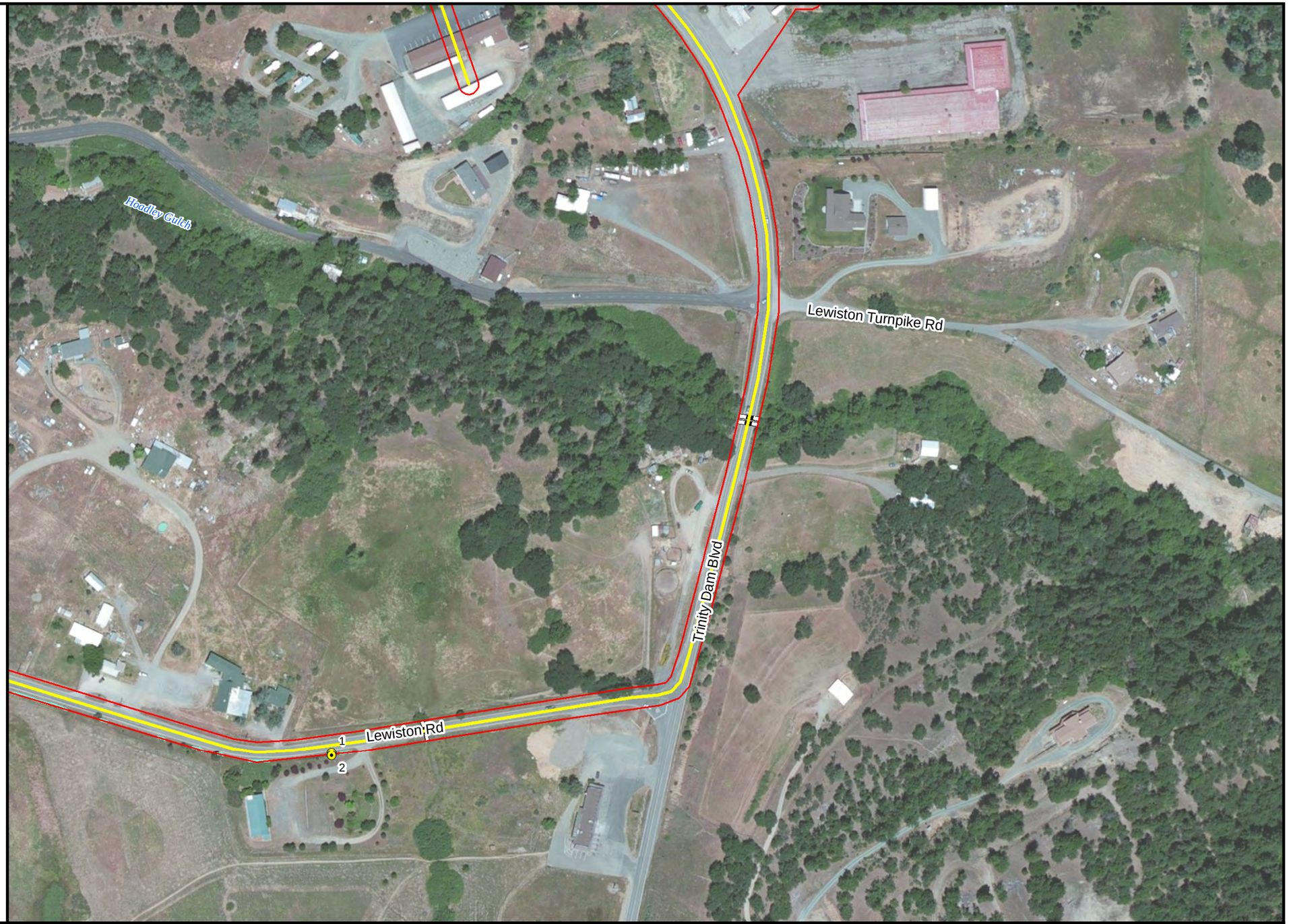

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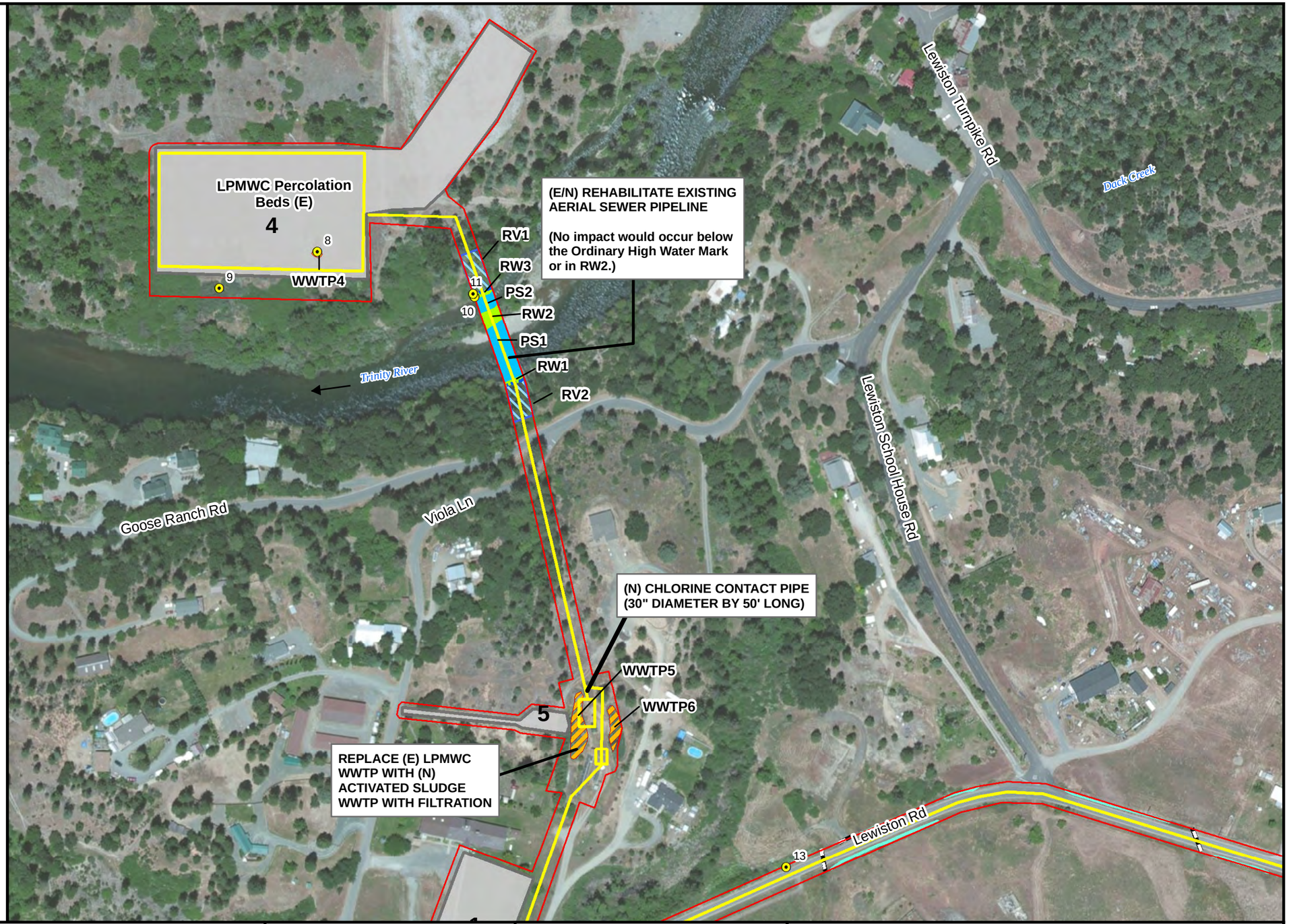

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Lewiston Community Services District Wastewater Project

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January 2017

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Summary of Potential Waters of the United States

Wetlands

Label	Type	Cowardin Type	Location (UTM m)	Area (ac)	Length (ft)	Width (ft)
RW1	Riparian Wetland	PSS1	516048, 4506087	0.006	--	--
RW2	Riparian Wetland	PFO1	516033, 4506124	0.025	--	--
RW3	Riparian Wetland	PSS1	516027, 4506139	0.006	--	--
RW4	Riparian Wetland	PSS1	516027, 4506140	0.370	--	--
Subtotal				**0.407**		
SW1	Seasonal Wetland	PSS1	517047, 4506263	0.054	--	--
SW2	Seasonal Wetland	PEM1	516933, 4506596	0.008	--	--
Subtotal				**0.062**		
SSW1	Seep Spring Wetland	PFO1	516743, 4506499	**0.415**	--	--
VD1	Vegetated Ditch	PEM2	516314, 4505844	0.005	101	2
VD2	Vegetated Ditch	PEM2	516272, 4505814	0.011	230	2
VD3	Vegetated Ditch	PEM2	516411, 4505837	0.010	214	2
VD4	Vegetated Ditch	PEM2	516524, 4505793	0.011	240	2
Subtotal				**0.037**	**785**	
Total Wetlands				**0.921**	**785**	

Other Waters

Label	Type			Area (ac)	Length (ft)	Width (ft)
IS1	Intermittent Stream	R4SB	516771, 4506545	0.011	164	3
IS2	Intermittent Stream	R4SB	517168, 4506440	0.003	115	1
Subtotal				**0.014**	**279**	
PS1	Perennial Stream	R3UB1	516041, 4506105	0.102	35	114
PS2	Perennial Stream	R3UB1	516029, 4506133	0.029	39	34
Subtotal				**0.131**	**74**	
Total Other Waters				**0.145**	**353**	
Total Potential Waters of the United States				**1.066**	**1,138**	

Summary of Excluded Waters of the United States

Isolated Features

Label	Type	Cowardin Type	Location (UTM m)	Area (ac)	Length (ft)	Width (ft)
WWTP1	Wastewater Treatment Pond	PEM2	516875, 4506588	0.450	--	--
WWTP2	Wastewater Treatment Pond	PEM2	516820, 4506588	0.416	--	--
WWTP3	Wastewater Treatment Pond	PEM2	516811, 4506520	0.603	--	--
WWTP4	Wastewater Treatment Pond	PEM2	515930, 4506162	0.005	--	--
WWTP5	Wastewater Treatment Pond	PEM2	516089, 4505881	0.069	--	--
WWTP6	Wastewater Treatment Pond	PEM2	516110, 4505882	0.033	--	--
Total Excluded Waters of the United States				**1.576**		

Impacts on Potential Waters of the United States

Temporary Impacts

Wetlands

Label	Type	Cowardin Type	Location (UTM m)	Area (ac)	Length (ft)	Width (ft)
SSW1	Seep Spring Wetland	PFO1	516743, 4506499	**0.011**	--	--
Total Impacts on Potential Waters of the United States				**0.011**		

Summary of Potential Waters of the State

Label	Type	Location (UTM m)	Area (ac)	Length (ft)	Width (ft)
RV1	Riparian Vegetation	516024, 4506152	0.071	--	--
RV2	Riparian Vegetation	516051, 4506076	0.065	--	--
RV3	Riparian Vegetation	516770, 4506499	0.318	--	--
RV4	Riparian Vegetation	516713, 4506488	0.238	--	--
Subtotal			**0.692**		
WWTP1	Wastewater Treatment Pond	516875, 4506588	0.450	--	--
WWTP2	Wastewater Treatment Pond	516820, 4506588	0.416	--	--
WWTP3	Wastewater Treatment Pond	516811, 4506520	0.603	--	--
WWTP4	Wastewater Treatment Pond	515930, 4506162	0.005	--	--
WWTP5	Wastewater Treatment Pond	516089, 4505881	0.069	--	--
WWTP6	Wastewater Treatment Pond	516110, 4505882	0.033	--	--
Subtotal			**1.576**		
Total Potential Waters of the State			**2.268**		

Impacts on Potential Waters of the State

Temporary Impacts

Label	Type	Location (UTM m)	Area (ac)	Length (ft)	Width (ft)
RV4	Riparian Vegetation	516713, 4506488	0.027	--	--
Total Impacts on Potential Waters of the State			**0.027**		

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0 100 200 400
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